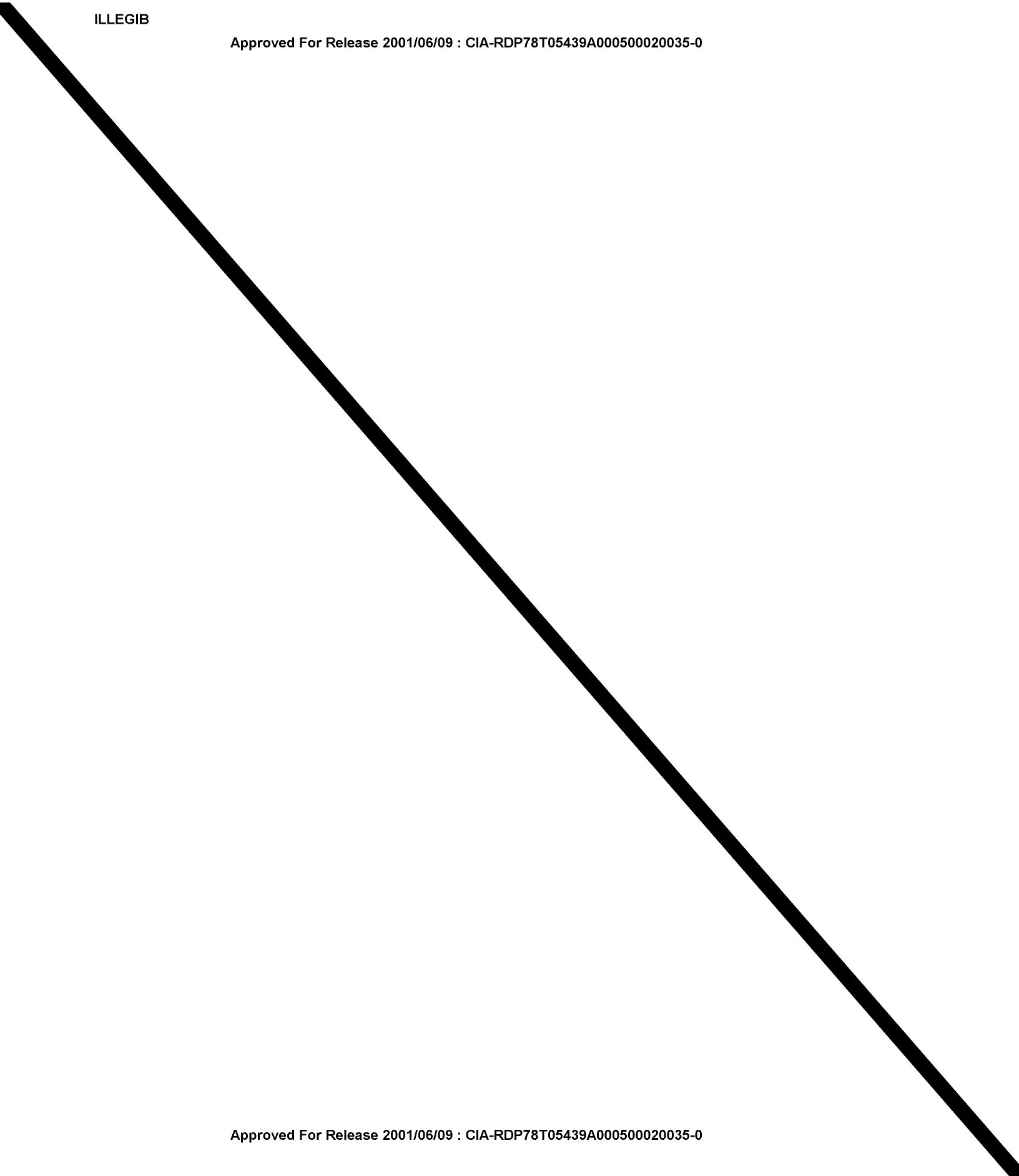

Approved For Release 2001/06/09 : CIA-RDP78T05439A000500020035-0

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TCS 1896/65
M/EB 121/65
12 April 1965
Copy_____

MEMORANDUM FOR: Chief, Forces Division, ORR

25X1A ATTENTION: [redacted] Defensive Missiles Branch

THROUGH: Chief, Requirements Branch, Reconnaissance Group, CGS

FROM: Chief, Photographic Intelligence Division, CIA

SUBJECT: Comparison of Tallinn, Leningrad and Sary Shagan Launch Positions

REFERENCES: (a) Requirement C-RR4-81,715
(b) CIA/PID Project 30740-4

1. This memorandum is in response to your requirement dated 20 August 1964 which requested a comparison of the size and appearance of launch positions found at the Leningrad AMM/SAM Launch Complexes, the Leningrad AMM/SAM training facility, the Tallinn AMM/SAM Launch Complex and certain launch sites at Sary Shagan Anti-missile Test Center, Launch Complex A.

2. It has been determined that the graphic approach offered the most effective analysis technique. Each of the launch sites in question (Attachments numbered 3 through 9) have been drawn to the same scale (30 feet to the inch) and rectified where possible. Those drawings not rectified were prepared from near vertical photography and probably have little overall distortion. Attachments 1 and 2 contain small scale orientation line drawings to show the location of the launch positions selected for scaled drawings. In view of the yet unresolved problems regarding the mating of specific launch positions with so-called antimissile missiles, a line drawing of the Ganef, the Griffon, and the Galosh has been prepared to the same scale as the line drawings of launch positions (30 feet to the inch). These line drawings (Attachment 10) show vertical views of the missiles on their transporters, being pulled by their prime mover where appropriate, thus making it possible to experiment with different entry and unloading concepts. In the case of the Griffon, it is possible the missile is transported to the launch complex in separate sections, the booster and sustainer being mated at or near the launch site. The drawing reveals the point where booster is joined to the sustainer. Attachment 11 is included to pin down terminology used with reference to the Leningrad AMM/SAM Complexes. All captions on the Leningrad Complexes should
25X1A read "AMM/SAM" instead of "probable AMM". The scaled line drawings should prove valuable in forming and discussing various hypotheses regarding system evolution, with a ready briefing device, as demonstrated by the photo analyst on 19 February
25X1A 1965 in a briefing presented [redacted] a party of intelligence analysts. To facilitate experimentation, all the line drawings of launch positions have been reproduced as black on white paper documents and also as transparent foil copies in color. The line

GROUP 1
Excluded from automatic downgrading and declassification

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drawings of the missiles have been reproduced in two colors as transparent foil copies only. The transparent copies permit any number of overlay combinations.

25X1D 3. Manipulation and study of the attached graphics and interpretation of the most recent photography of Sary Shagan, Leningrad and Tallinn ([redacted]) results in the following analysis:

25X1D a. There is considerable similarity between the curved missile ready buildings at Sary Shagan Launch Complex A (Attachment 8) and the missile ready buildings at Leningrad (Attachments 7 and 9), with the former being prototype sites. These missile ready buildings are probably constructed to the same general specifications, dimensionally appearing similar.

(1) the position of the launch point with reference to the missile ready building at the Leningrad deployed sites is similar to that at the Sary Shagan prototype sites.

(2) The prototype missile ready buildings at Sary Shagan probably have loading rails to the rear, positioned in the same location with reference to the missile ready building as those seen at the Leningrad deployed sites. Snow cover prevents confirmation of missile transfer rails approaching the erector/launcher's at Sary Shagan, however, faint striations in front of the ready building at Launch Site 6 were detected on previously accomplished good quality KH-4 photography. The possible presence of loading rails to the rear of the curved ready buildings at Sary Shagan suggests that transfer rails probably exist between the missile ready buildings and their respective launch positions.

b. The apparent differences between the prototype launch sites and the Leningrad deployed and training sites are as follows:

(1) Each of the Sary Shagan prototype sites was originally designed for six launch positions, arranged two rows of three positions each, back to back, forming a square pattern, served by a central loop road. This design configuration was never achieved because none of the launch positions facing to the southeast were constructed, though circular excavations for launch point foundations were visible at launch site 6 as early as [redacted] 25X1D 25X1D. Earlier photography was not of sufficient quality to confirm or negate their presence. On the other hand, the Leningrad deployed sites are designed so the curved, missile ready buildings are arranged in a circle.

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(2) The curved, missile ready building at Sary Shagan Launch Site 5, Launch Complex A, is suspected to have a flat roof, whereas a curved ridge line and pitched roof can be seen at all the missile ready buildings at deployed Leningrad sites and at Launch Site 6, Sary Shagan, Launch Complex A. Available photography does not permit determination of roof type at the curved ready building at the Leningrad AMM/SAM Training Site.

25X1D (3) Each Leningrad deployed site, missile ready building has a [redacted] structure positioned on each side of the curved building, adjacent to the inner arc. Such a structure can not be found at the Sary Shagan prototype sites or at the Leningrad training site. It is suspected that either these structures are designed to house emergency internal combustion electric generators, or they are in some way associated with an automatic system designed to move the missile from the ready building to the launcher during an alert or attack situation.

(4) The Leningrad AMM/SAM Training Launch Site (Attachment 9) has probably never had an erector/launcher installed in front of its curved, missile ready building. Until very recently, the same could be written about the deployed sites in the Leningrad area. The first evidence that erector
25X1D launchers were being installed at the Leningrad sites was revealed on photography of [redacted] when activity was detected at each of the launch points at launch sites C, D, and E at Leningrad D34 (Northwest) AMM/SAM Launch
25X1D Complex. [redacted] a blanket of snow facilitated the detection of activity or erector/launchers at the launch points, and on
25X1D [redacted] revealed that these launch points did indeed contain
25X1D erector/launchers. Negation of these features can not be precisely accomplished.
25X1D Due to the appearance of prepared launch point foundations at the Leningrad
25X1D sites, the erector/launchers seen in [redacted] can not be negated any later
25X1D [redacted] As shown in Attachment 7, the launch
25X1D points at the Leningrad deployed AMM/SAM sites in [redacted] consisted of a flat,
25X1D circular pad [redacted] in diameter, possibly made of concrete, in the center of which was a dark circular area approximately 5 feet in diameter, having no
25X1D apparent height. The launch pad areas surrounding the launch points at Sary Shagan launch sites 5 and 6, Launch Complex A, are larger than the areas surrounding the launch points at the deployed Leningrad AMM/SAM launch sites. As an example, the prepared semi-circular area surrounding the launch point at launch site 5 is approximately 90 feet across (See Attachment 8).

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25X1D 25X1D 25X1D 25X1D 25X1D 25X1D (5) The three erector/launchers present at Sary Shagan Launch Site 5, Launch Complex A, were probably in place on [redacted] whereas the two erector/launchers at nearby Launch Site 6 were probably missing as the site was probably still under construction. Photography of [redacted] revealed the presence of the two largest structures in launch site 6 and [redacted] revealed two possible erector/launchers in place. The excellent quality coverage of [redacted] revealed sufficient detail to allow identification of a few design features of the erector/launchers at Sites 5 and 6, Sary Shagan Launch Complex A. Comparison with the details revealed at Leningrad Northwest AMM/SAM Complex by [redacted] leads to the conclusion that the erector/launchers are not of the same type. In fact, they are sufficiently different to suspect that the missile possibly fired from Launch Sites 5 and 6, Sary Shagan Launch Complex A was of a different type than that now being positioned in the curved ready buildings at the deployed sites near Leningrad, or it has been modified to permit a different erection/launch technique.

25X1A (6) The erector/launchers at Launch Sites 5 and 6, Sary Shagan Launch Complex A, appear to have a lattice framework supporting a [redacted] 25X1D cantilever beam approximately [redacted] the launch pad, with the cantilevered 25X1D end pointing toward the curved, missile ready building. Note attachment 8 and 12. In this regard, attention is invited to [redacted] 25X1C forwarded by DIA [redacted] which describes a film clip shown on Soviet TV on 9 May 1964. This film purportedly showed the launch of a Griffon missile. The report does not make it clear whether the film had sufficient continuity to ascertain whether the erector/launcher ("a lattice frame running over the top of the missile") was part of the missile transporter which emerged from the missile ready building, or a separate device at the launch point. The drawing which forms part of the report does not clearly resolve the problem either. It is believed that a gap in the sequence did occur, cutting out the portion where the missile was transferred from the rail mounted missile transporter to the erector/launcher. The erector/launcher at Sary Shagan Launch Complex A, Launch Sites 5 and 6, as revealed by [redacted] 25X1D resembles somewhat the "lattice frame" which the [redacted] report describes as running over the top of the missile. This supports the hypothesis that the 25X1C erector/launcher at the Sary Shagan curved ready building sites is not part of the missile transporter dolly which carries the missile from the ready building out to the launch point.

c. In view of the different erector/launchers being installed at the Leningrad deployed AMM/SAM launch sites, it is important to determine which

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of the related R & D launch positions have similar erector/launchers, keeping in mind, at the same time, that we have yet to view good quality [redacted] of the operations area at Sary Shagan Launch Complex B. Nevertheless, it is probably reasonable to assume that Launch Complex A will provide the answer to the question of what is happening at the Leningrad AMM/SAM Launch Complexes. Analysis of the [redacted] accomplished over Sary Shagan Launch Complex A [redacted] reveals that a number of launch positions at Launch Sites 3 and 4 possibly have erector/launchers similar to those revealed [redacted] at Leningrad NW Probable AMM/SAM Launch Complex on [redacted] Specifically, the Sary Shagan Launch Complex A launch positions which possibly have such erector/launchers are:

Launch Site 3, launch positions 1 and 4

Launch Site 4, launch position 1

These erector/launchers are oriented favorably with reference to the sun, thus permitting mensuration, and they measure approximately [redacted] with the top surface of the device approximately [redacted] above the launch pad.

d. Attachment 12 shows scaled line drawings at 30 feet to the inch, showing both erector/launchers as they have been observed in photography. Attachment 5 was drawn from [redacted] which permitted detection of gross features only. [redacted], photographed scattered to heavy clouds over Launch Complex A and the view of launch position 2, launch site 4 did not permit identification of the object located on the launch point, however, it possibly was a single light toned object approximately [redacted] The width, more difficult to determine, was probably 5 to 10 feet. This object appeared to be located on a roughly square dark area approximately 20 feet on a side (having no apparent height), which in turn was centered in two concentric circles. The inner circle had approximately a 50 foot diameter and the larger circle a 90 foot diameter. The inner circle at this launch position can not be detected on [redacted] photography due to snow cover and high contrast conditions.

e. It is interesting to note the correlation between "rabbit ear" launch positions (Launch Site 4, Sary Shagan Launch Complex A) and the curved building sites (Attachments 5, 7, 8, and 9). By placing the transparent copy of Attachment 5 over Attachment 7 or 8, it can be seen that there are certain similarities in the size of the launch pad and the distance from probable

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"missile ready position" to the launch point. There is also some dimensional similarity between the object on the end of the "rabbit ear" extension (Attachment 5) and the object parked to the rear of missile bay number 4 on Attachment 8. Attachment 6 shows that dimensionally, there is far less correlation with launch positions 3 and 4 at Launch Site 3, Sary Shagan Launch Complex A. However, the recent [redacted] shows there is considerable correlation between the erector/launcher at launch position 4, Launch Site 3, Sary Shagan Launch Complex A and the erector/launchers seen at the "rabbit ear" sites and those seen at the Leningrad NW AMM/SAM Launch Complex.

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f. As of [redacted] erector/launchers have not been detected at any of the Tallinn AMM/SAM Launch Sites, however, the most recent coverage of [redacted] reveals a sharp V pattern developing in some of the launch positions, similar to that seen at launch position 5, Launch Site 3, Sary Shagan Launch Complex A (Attachment 4). Comparison of these launch positions by placing the transparent copy of Attachment 4 over Attachment 3 reveals a considerable amount of dimensional similarity. The striation pointing from the probable launch point down the access road, as depicted on Attachment 4, was seen on [redacted]. It appeared to have no height, and could not be identified on following [redacted]. The appearance of the launch points at Tallinn have shown some similarity to that seen at Sary Shagan Launch position 5, Site 3, Complex A, (Attachments 3 and 4) however the timing of [redacted] precludes a more definitive comparison. At the time the Sary Shagan position was photographed by [redacted] it was considerably advanced in construction status as compared to the situation at Tallinn when it was covered by equally good large scale [redacted] The dark square on Attachment 3 depicts what appeared to be an excavation in [redacted]. [redacted] was non-stereo and does not permit depth or height analysis of the launch points at Tallinn. Sary Shagan launch position 5 at Launch Site 3 reveals a raised mass at the launch point, surrounded by an area of dark tone, probably having no height, as depicted on Attachment 4. The raised mass is approximately [redacted] and has a width of approximately 10 feet. Shadow and available resolution do not permit a more precise measurement. In the opposite side of the launch position are two raised masses (approximately [redacted] in plan view). In each case the masses are depicted as rectangular, however, this is for convenience only as their true shape can not be determined. The two raised objects in the rear or "ready position" of the revetment are spaced approximately 20 feet apart, center to center, and approximately 115 feet from the raised object at the launch point. The objects at the ready position are located at the terminus of ten foot wide striations which project in a sharp "V" shape from the launch point. It is suspected that each leg of the "V" has

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some depth. The launch revetment walls have two flat areas, one approximately 20 by 40 feet on the long side of the revetment and the other approximately 60 by 20 feet near the "ready" end of the revetment. A "C" shaped bunkered structure is located opposite the position entrance. Shadow and available resolution preclude determination of the true shape of the object positioned at the launch point at launch position 5, Launch Site 3, Sary Shagan Launch Complex A, however, it appears to be unlike the objects at any of the other launch positions at launch sites 3 and 4. The object at position 6, Launch Site 3, is difficult to discern due to the probable vehicles parked in close proximity to it and the direction of the shadow.

g. Using the overlay comparison technique, it is interesting to note certain correlations between the launch position depicted by Attachments 4, 5, and 7. Placing Attachment 4 over Attachment 5, it can be seen that there is dimensional correlation between the two launch points and the distance between the launch points and the objects at the ready position. Placing Attachment 4 over Attachment 7, it can be seen that the "V" shaped striations fall fairly precisely over launch point access rails from two adjacent missile bays. The latter correlations are particularly significant in view of the erector/launcher correlations and the activity seen at Leningrad NW on [redacted] 25X1D
[redacted]. This activity resulted in an unusual repetitive pattern between the 25X1D
missile ready buildings and the launch points at Leningrad NW Launch Sites D and E. At Launch Site D, launch point access rails from missile bays 1 and 2 appear to have been used and in some cases have possible vehicles astride one or both of the access rails. The same is true at launch positions 1 through 4 at Launch Site E. In each case the access rails from missile bays 1 and 2 are used, producing a sharp "V" pattern, not unlike that formed by the "V" at Tallinn and Sary Shagan Launch Site 3, Position 5, Launch Complex A.

DISCUSSION:

The timing of construction at Leningrad and Sary Shagan Launch Complex A, in addition to correlations mentioned above and recent photographic evidence, tend to support certain hypotheses in varying degrees:

1. The missile system being currently installed at the Leningrad AMM/SAM Launch Complexes is not the system for which the complexes were originally designed and constructed. More specifically, that the missile now being emplaced in the missile ready buildings at Leningrad is not the same for which the complexes were originally designed, or the original missile has been modified to meet a different operational concept or to complement a different electronic

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guidance system. Furthermore, Launch Site 3 and 4, Sary Shagan Launch Complex A were constructed to develop and test the alternate or modified missile system for the Leningrad Complexes.

Primary Evidence:

a. Correlation of erector/launchers, Leningrad NW and Sary Shagan Launch Sites 3 and 4, Launch Complex A.

b. Extensive activity at Launch Sites 3 and 4, Sary Shagan Launch Complex A, at the same time that Launch Sites 5 and 6 were inactive during the 1963 1964 period.

c. Failure to install at Leningrad the type of erector/launcher found in front of the curved ready building at Sary Shagan Launch Sites 5 and 6, Launch Complex A. Instead, the installation of erector/launchers at Leningrad NW which are similar to those seen at Launch Sites 3 and 4, Sary Shagan, Launch Complex A.

d. The construction sequence at Sary Shagan Launch Complex A, with Launch Sites 5 and 6 being constructed first, followed by launch sites 3 and 4, with two different ground support concepts probably being tested simultaneously at launch sites 3 and 4.

2. The missile system being installed at Tallinn is the same which is now being installed at the Leningrad Probable AMM Launch Complexes. The evidence which supports this hypothesis is not all clear-cut, and there is some evidence which tends to support an opposing point of view, that is, that the missile system being installed at Tallinn is not the same as that being installed at Leningrad. Evidence which supports the first of these hypotheses is as follows:

a. Installation of five ramped electronics positions (which form a pentagon when connected by straight lines) at approximately the same interval and oriented similarly with reference to an assumed threat direction (assuming air breathing attack vehicles) at Leningrad NW and Tallinn AMM/SAM Launch Complexes.

b. The "V" pattern formed by activity between missile ready buildings and launch points at certain Leningrad AMM/SAM launch positions and the correlation between these patterns and those formed in the Tallinn type revetment at Sary Shagan Launch Complex A, and at the Tallinn AMM/SAM Launch Complex. Should following missions reveal activity from more than two missile bays at the Leningrad AMM/SAM launch sites, the significance of these early patterns would require further analysis.

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c. The approximate similarity in distance between radars at Electronics Site B, and Launch Sites 3 and 4 at Sary Shagan Launch Complex A, and the distances between the so called pentagon placed electronics and the launch sites at Tallinn.

d. No apparent installation of new electronics near Launch Sites 3 and 4 Sary Shagan Launch Complex A with the construction of the Tallinn type launch revetment at Launch Site 3.

3. Evidence which tends to support the second hypothesis is as follows:

a. Complete discarding of original launch point configuration at launch positions 5 and 6, Sary Shagan Launch Complex A, Launch Site 3, followed by the construction of a grossly different reveted launch position, in the case of position 5.

b. Construction of unusual roads and hardstands near Launch Site 3, Sary Shagan Launch Complex A, concurrent with the construction of the so-called Tallinn type launch position at Launch Site 3. This includes a "C" shaped revetment, protected by two crescent shaped revetments near Electronics Site B.

25X1D c. Detection on [redacted] of 75 to 100 foot long objects on the new roads and hardstands which were constructed concurrent with the construction of the Tallinn type launch position. These suspect vehicles could constitute loads longer than anything previously seen at Launch Complex A.

d. The distances between the so called pentagon electronics positions and the launch sites at Leningrad NW AMM/SAM Launch Complex are between 500 and 2,000 feet greater than they are at Tallinn.

4. In discussing the above evidence, it must be kept in mind that the so-called gross difference in the appearance of the Tallinn type launch position (Attachment 4) and the so-called rabbit ear positions (Attachment 5), is due primarily to the presence of the revetment. It is conceivable that a decision to revet a "rabbit ear" type launch position was made, and to save space and construction material they simply redesigned the rabbit ear launch position to bring the "ears" or "ready" positions closer together. As for the long 25X1D loads seen near Launch Site 3 [redacted] it must be remembered that they were observed on relatively poor quality KH-4 photography and were visible primarily due to snow cover which created a high constrast situation. Consequently it is not possible to confirm that the long objects were single vehicles or a group of vehicles in a string. Nevertheless,

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this does not help resolve the problem. The configuration of the launch point at the Tallinn type launch position (Site 3, Position 5) at Sary Shagan (Attachment 4) appears to be different from those features which can be detected at all other launch positions at Launch Complex A. It also appears to be different from what can be seen at the launch positions at the Leningrad AMM/SAM Launch Complexes on [redacted] and different from what can be seen at the Leningrad Northwest AMM/SAM Launch Complex on [redacted] where erector/launchers can be identified on a number of the launch points. Another unanswered question is why a decision to revet at Launch Site 3, Sary Shagan Launch Complex A, was made after so many months of launch operations from unrevetted launch positions?

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As for missiles depicted on Attachment 10, it is reasonable to assume that the Griffon was the missile originally intended for the curved, missile ready buildings, however, it is more difficult to comfortably place either of the other two missiles into Tallinn. (To assist in this analysis a similarly scaled (30 feet to 1 inch) line drawing of an entire Tallinn launch site is included as Attachment 13). The Galosh appears to be too large, and the Ganef too small, suggesting that the Soviets have one or more missiles we have yet to see in a Moscow parade. Nevertheless, in view of the evidence of long loads at Sary Shagan Launch Complex A on [redacted] it is necessary to speculate regarding the Galosh, and its possible placement in a Tallinn type launch position. To place the Galosh in a Tallinn type launch position would possibly require a special missile receiving boom, or erector, which would receive the missile while it was moved in along the access road, erect it partially or wholly, then turn in azimuth on its base before lowering the missile down onto one of the legs of the "V" shaped access paths. The missile would then be moved along a track toward the ready end of the launch position, while the receiving boom or erector would receive a second missile, to be lowered in the same manner. Thus each launch position could hold two Galosh missiles.

25X1D

One of the problems in assuming that the Griffon is not the missile now being emplaced in the Leningrad AMM/SAM Launch Complexes, is designating a launch site which will use it, unless of course, one assumes that the Soviets do not plan to mass produce the Griffon following the problems they encountered at the Leningrad AMM/SAM Launch Complexes. Regardless of how one views the Griffon problem, the Galosh must also be identified with a specific launch site. Many additional pieces to the puzzle will undoubtedly fall in place with the accomplishment and analysis of additional large scale, good quality stereo

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photography of Sary Shagan Launch Complex A, Tallinn, Cherepovets, and the Leningrad AMM/SAM Launch Complexes.

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5. The photo analyst on this project is [redacted] who may be contacted on extension 2422 should you have any further questions concerning this project.

6. The cut-off date on this project is 28 March 1965, however work on supplement 1 to C-RR3-80,551 and C-RR3-80,730 (CIA/Project 30004-5, Supplement 1) will possibly add valuable information on the same subject. The latter project is nearing completion as of this date. Missions accomplished after [redacted] will undoubtedly require updating of this analysis. This project is considered to be complete.

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Enclosures:
1 - Listing of attachments
2 - Two orientation drawings
3 - Ten scaled line drawings
4 - One perspective line drawing

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ATTACHMENTS:

	Control No.	Copies	Description
1.	CIA/PID/MEB-P-66/65	1	Orientation drawing of Tallinn AMM/SAM Launch Complex
2.	CIA/PID/MEB-P-67/65	1	Orientation drawing of Sary Shagan Launch Positions 3 and 4, Complex A
3.	CIA/PID/MEB-P-68/65	2	Scaled line drawing of a Tallinn launch position (one paper copy and one transparent copy)
4.	CIA/PID/MEB-P-69/65	2	Scaled line drawing of Launch Position 5, Launch Site 3, Launch Complex A, Sary Shagan. (one paper and one foil)
5.	CIA/PID/MEB-P-70/65	2	Scaled line drawing of Launch Position 2, Launch Site 4, Launch Complex A, Sary Shagan (one paper and one foil)
6.	CIA/PID/MEB-P-71/65	2	Scaled line drawing of Launch Position 4, Launch Site 3, Launch Complex A, Sary Shagan (one paper and one foil)
7.	CIA/PID/MEB-P-72/65	2	Scaled line drawing of a Leningrad AMM/SAM Launch position, (one paper and one foil)
8.	CIA/PID/MEB-P-73/65	2	Scaled line drawing of missile ready building and launch position at launch site 5, Launch Complex A Sary Shagan (one paper and one foil)
9.	CIA/PID/MEB-P-74/65	2	Scaled line drawing of the AMM/SAM training launch site, Leningrad (one paper and one foil)

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ATTACHMENTS: (Continued)

	Control No.	Copies	
10.	CIA/PID/MEB-P-76/65	2	Scaled line drawings of the Griffon, the Galosh and the Ganef (two foil copies, in different colors)
11.	CIA/PID/MEB-P-510/64	1	Perspective line drawing of a Leningrad AMM/SAM Launch Position, with terminology key.
12.	CIA/PID/MED-P-161/65	1	Scaled line drawing of erector launchers seen at Sary-Shagan and Leningrad NW.
13.	NPIC J 4129	1	Scaled line drawing of a Tallinn AMM/SAM Launch Site

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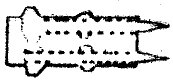
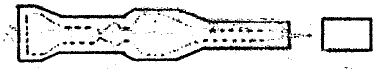
[redacted]

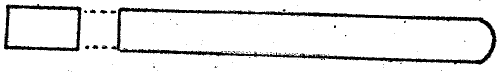
Measurements for this graphic have been made by the NPIC Technical Intelligence Division, and are con-



OANEF



GRIFFON



GALOSH

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SCALE 1"=30FT

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ATTACH. NO. 10

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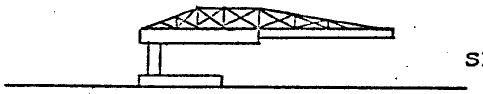
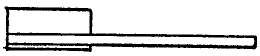
LAUNCHERS



SIDE VIEW

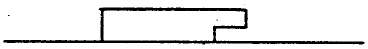


TOP VIEW

Sary-Shagan, Launch Complex A

Launch Sites 5 and 6

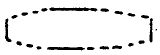
The design of the lattice supporting framework is hypothetical.



SIDE VIEW

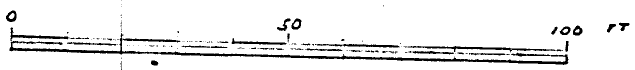
Sary-Shagan, Launch Complex A
Launch Site 3, Position 1 & 4
Launch Site 4, Position 1

Leningrad NW AMM/SAM Complex



TOP VIEW CONFIGURATION
CAN NOT BE DETECTED

All measurements have been made by the CIA/PID project analyst, using scale factors provided by NPIC/TID. They should not be construed as being mensuration data compiled by the NPIC Technical Intelligence Division.



Approximate Scale: 1 inch equals 30 feet

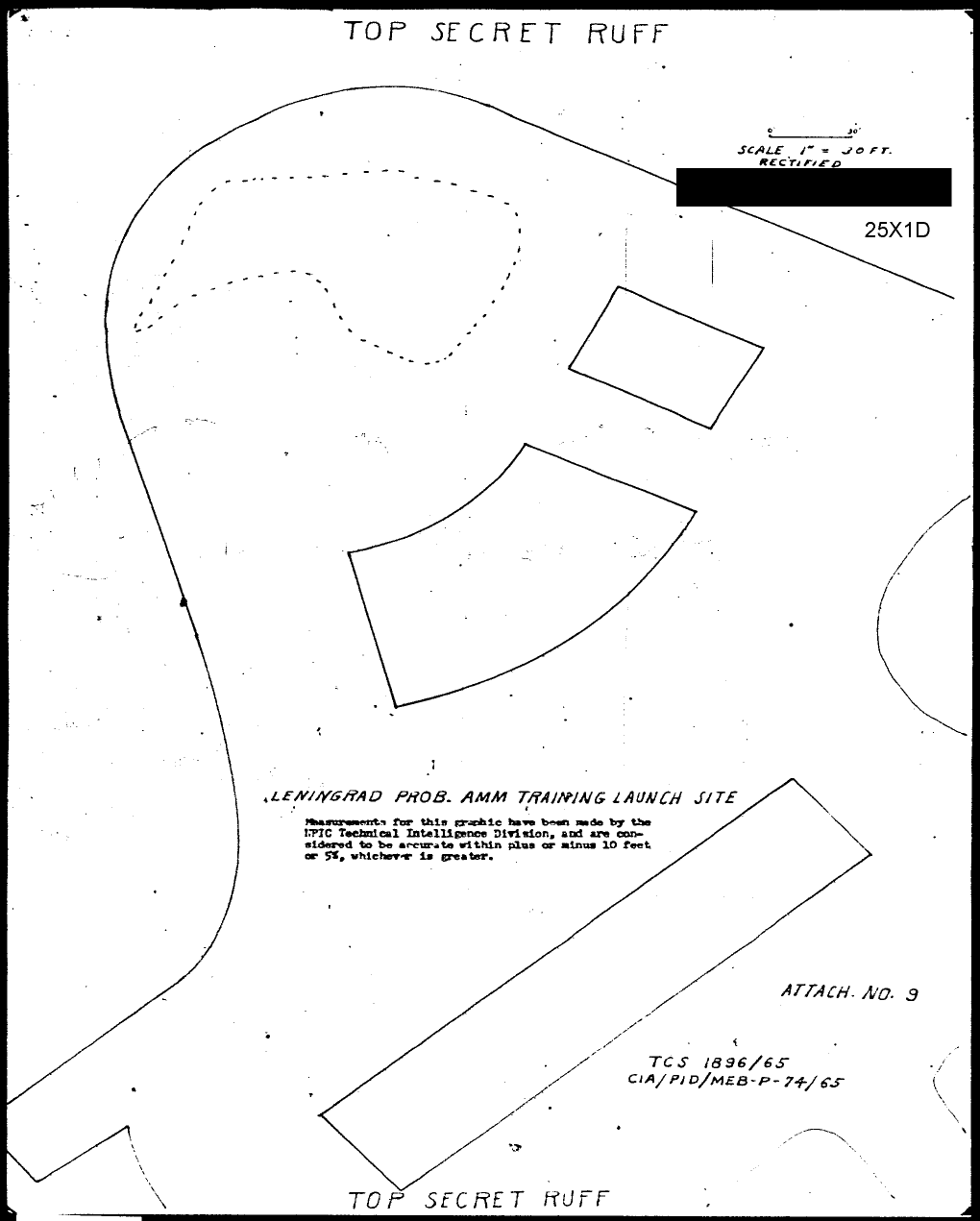
TCS 1896/65

CIA/PID/MEB-P-161/65

ATTACH. NO. 12

S-16946

TOP SECRET RUFF



LENINGRAD PROB. AMM TRAINING LAUNCH SITE

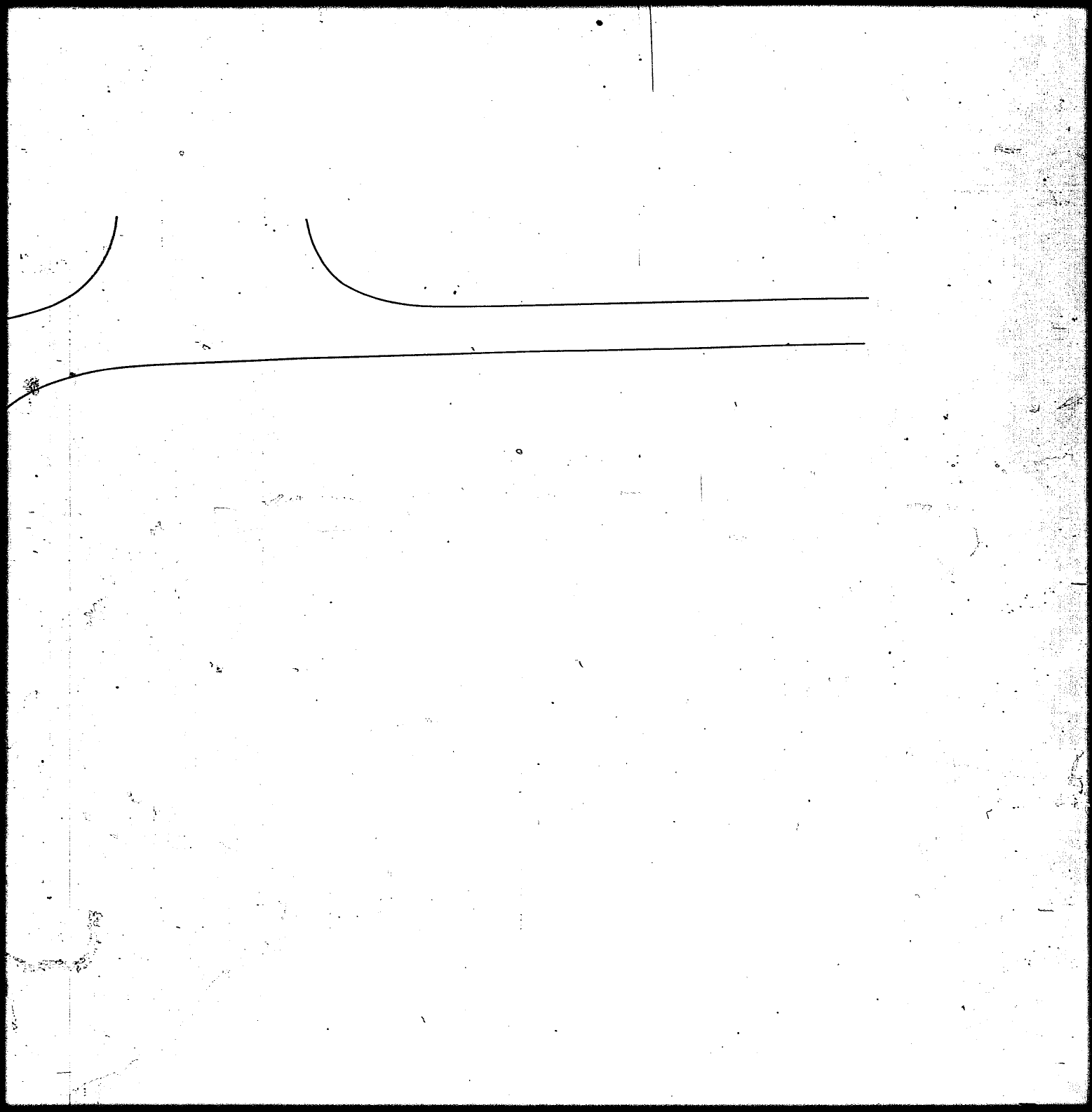
Measurements for this graphic have been made by the NPIC Technical Intelligence Division, and are considered to be accurate within plus or minus 10 feet or 5%, whichever is greater.

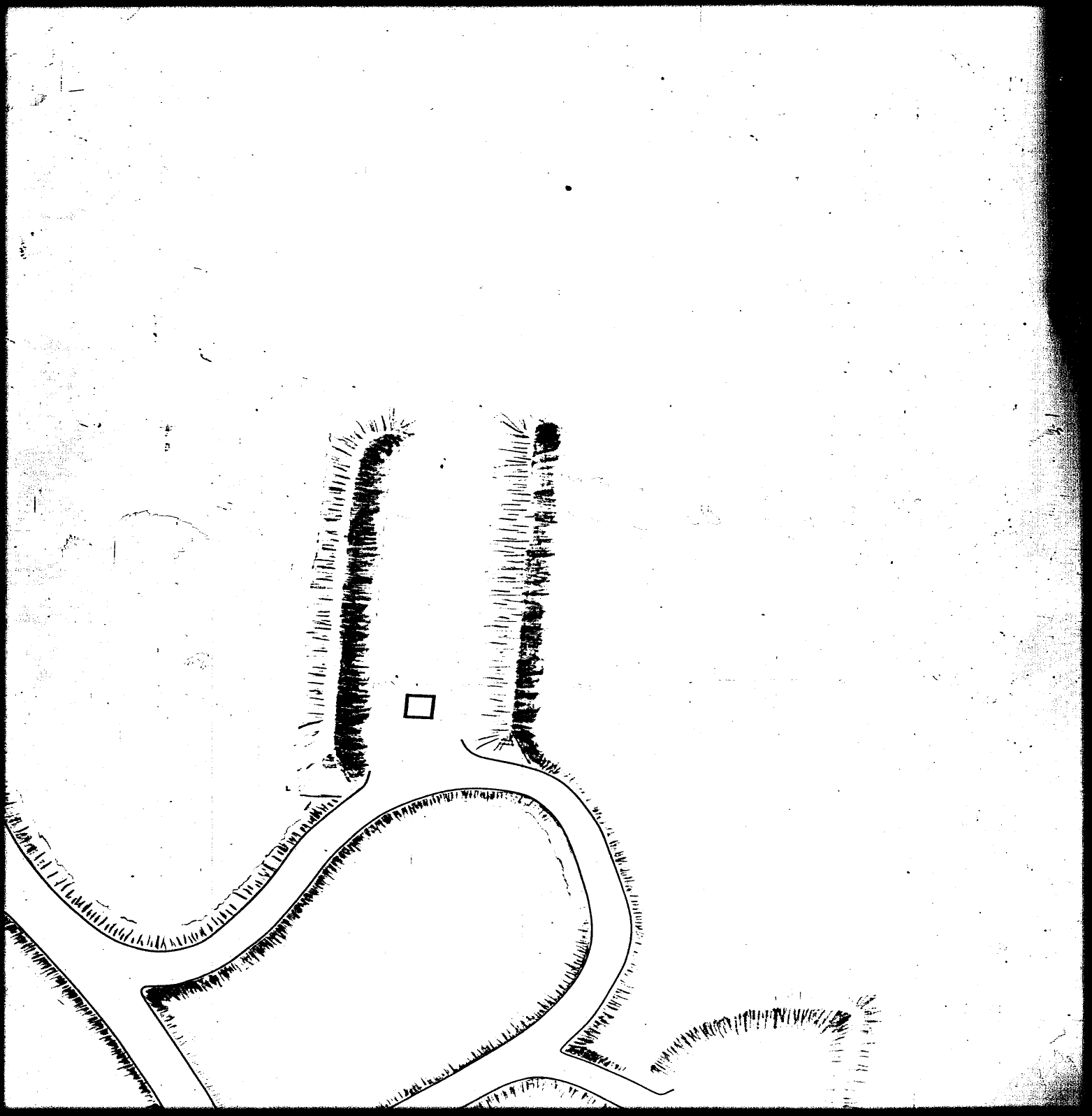
ATTACH. NO. 9

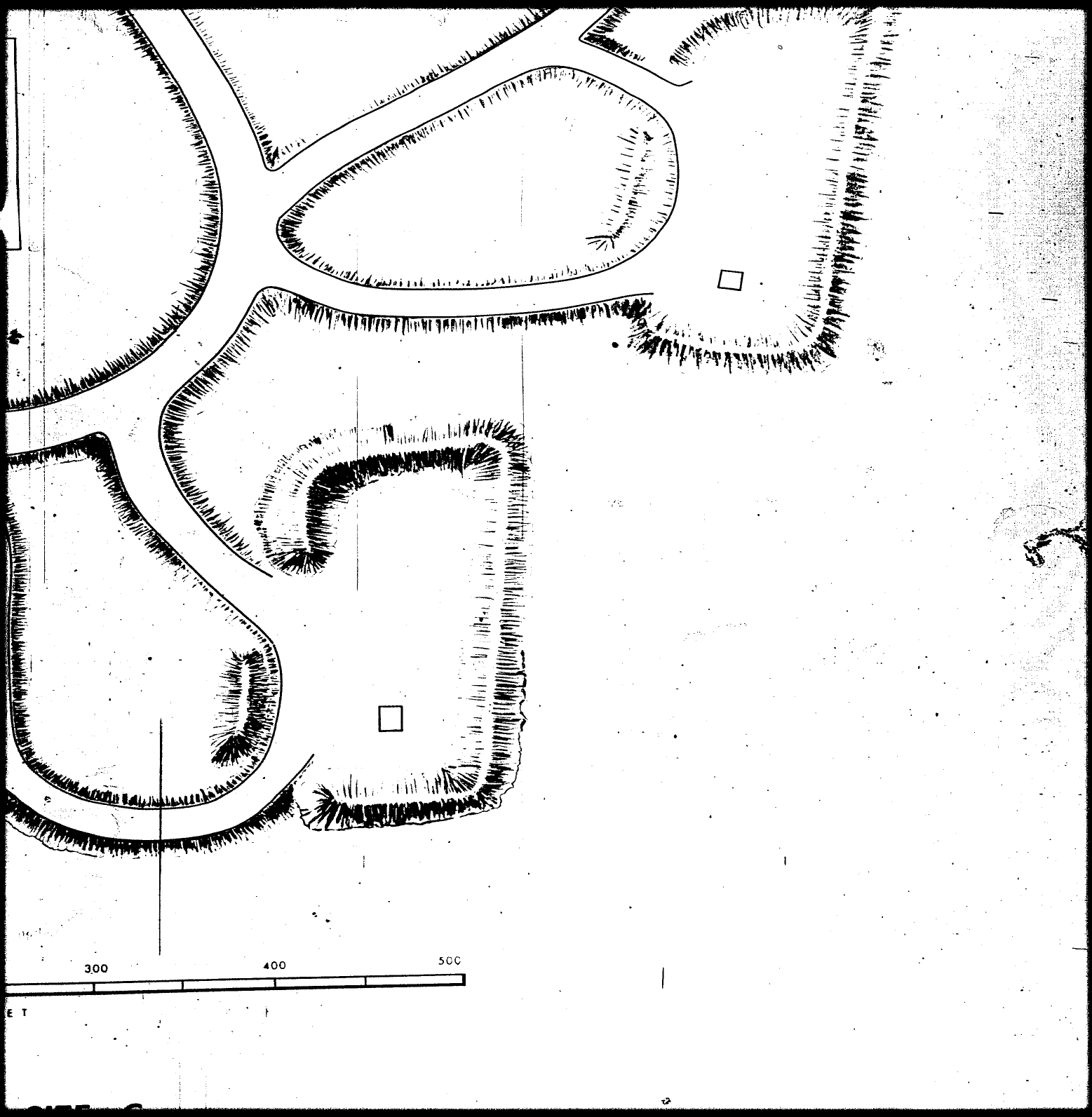
TCS 1896/65
CIA/PID/MEB-P-74/65

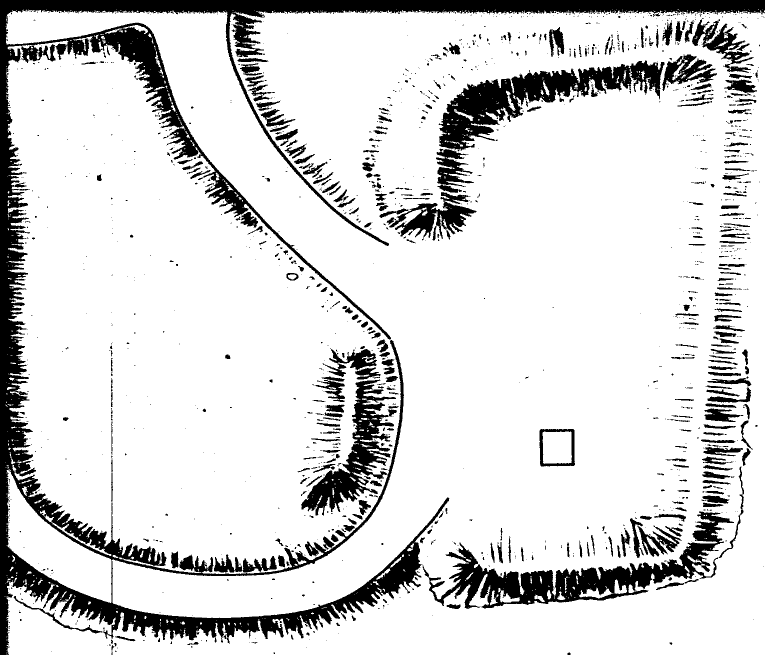
TOP SECRET RUFF

84-94






300
400
500



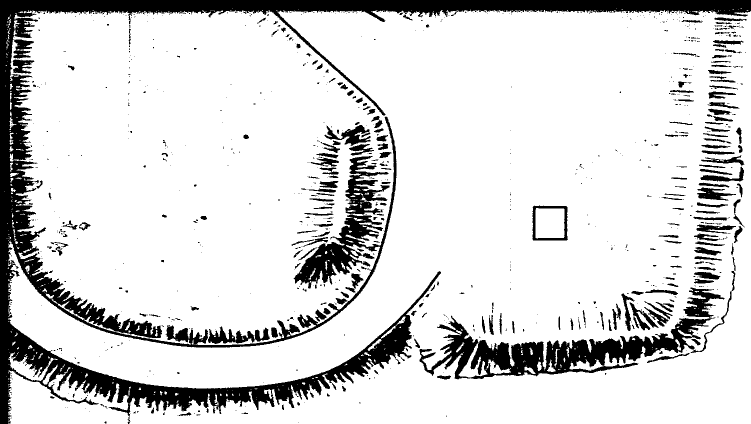
300 400 500

T

SITE C
AMM COMPLEX
USSR

24-19E

T - RUFF



300 400 500

T

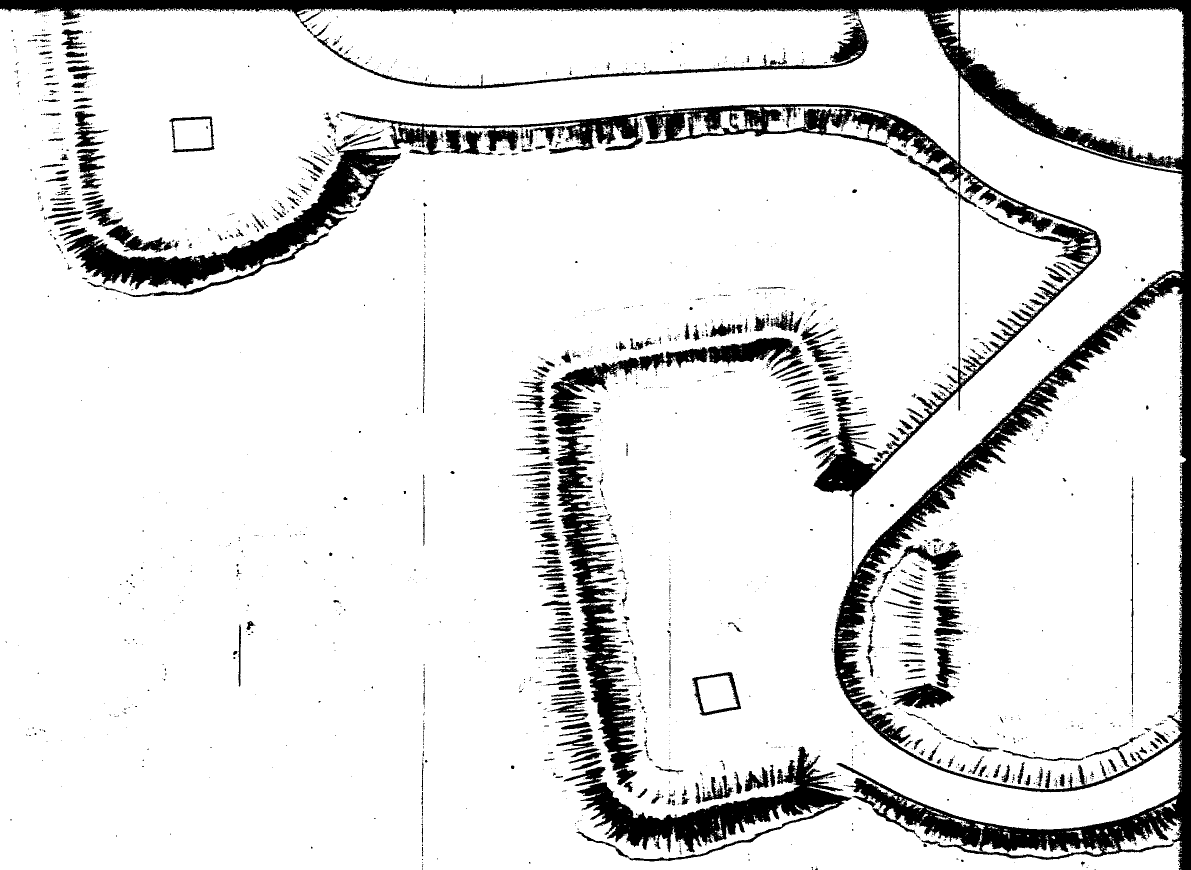
SITE C

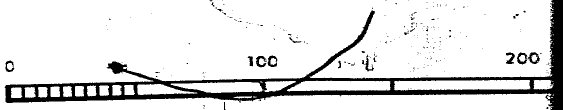
MM COMPLEX

USSR

4-19E

- RUFF





LAU

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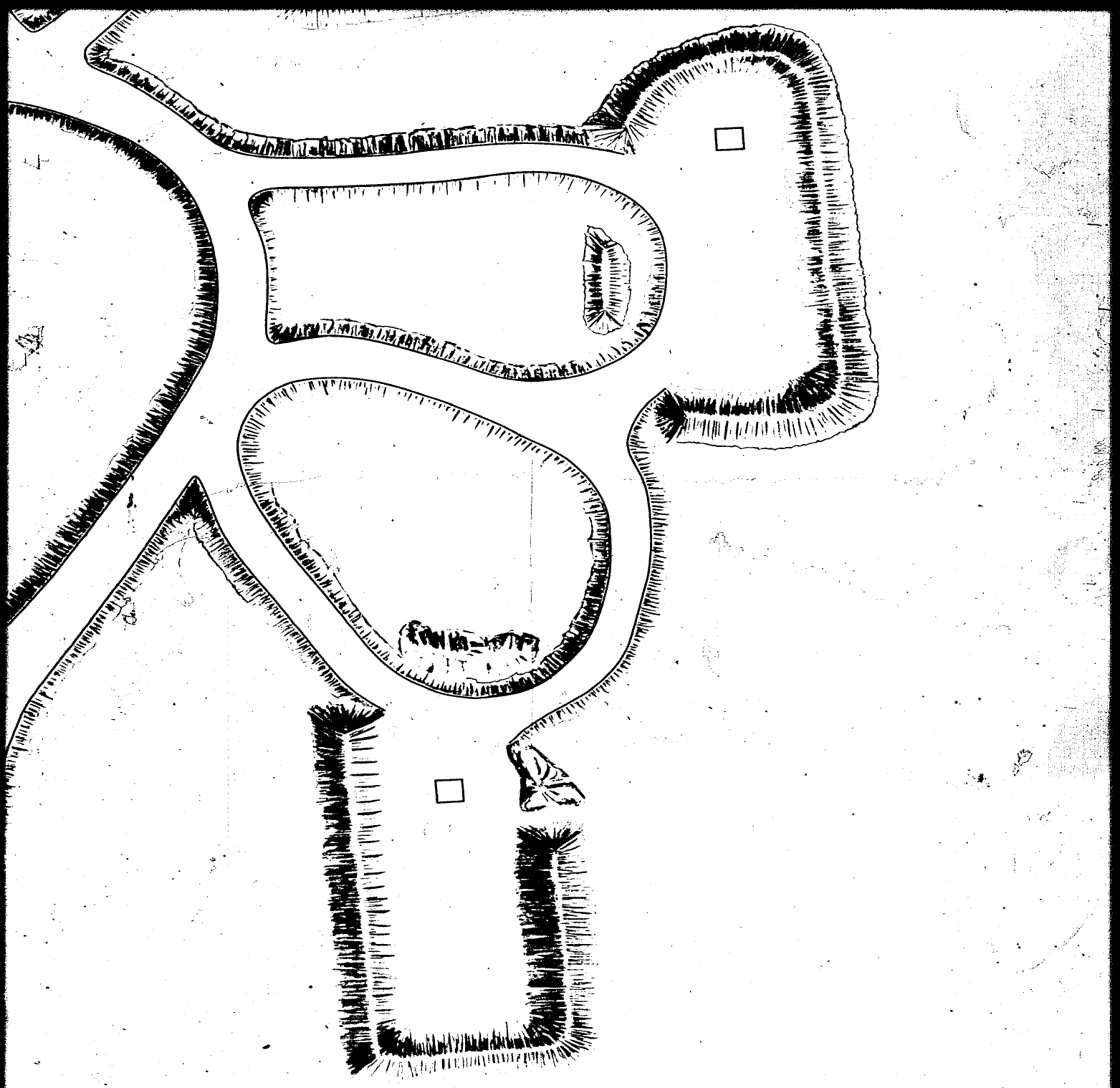
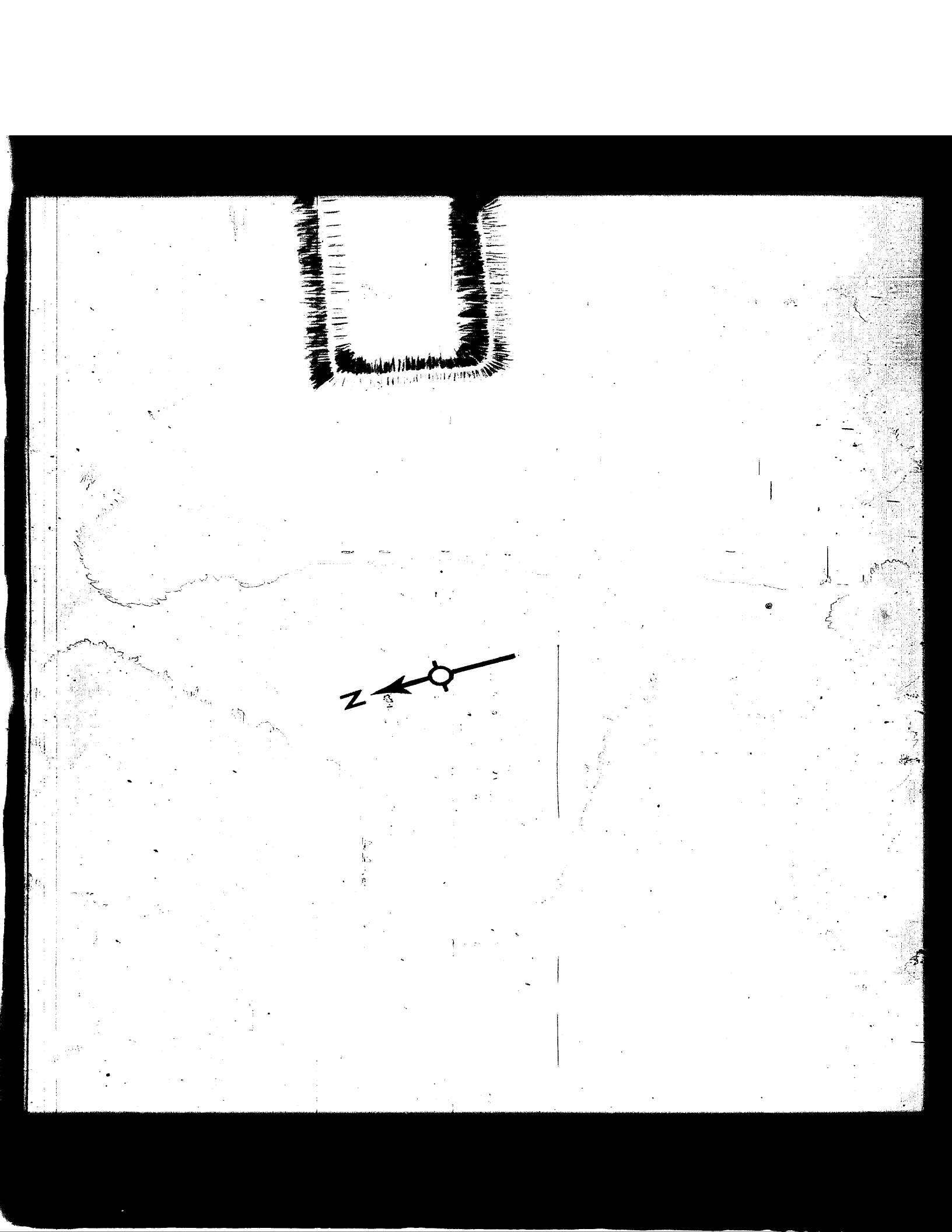
NPIC J-4129 (9/64)

TCS 15%/65

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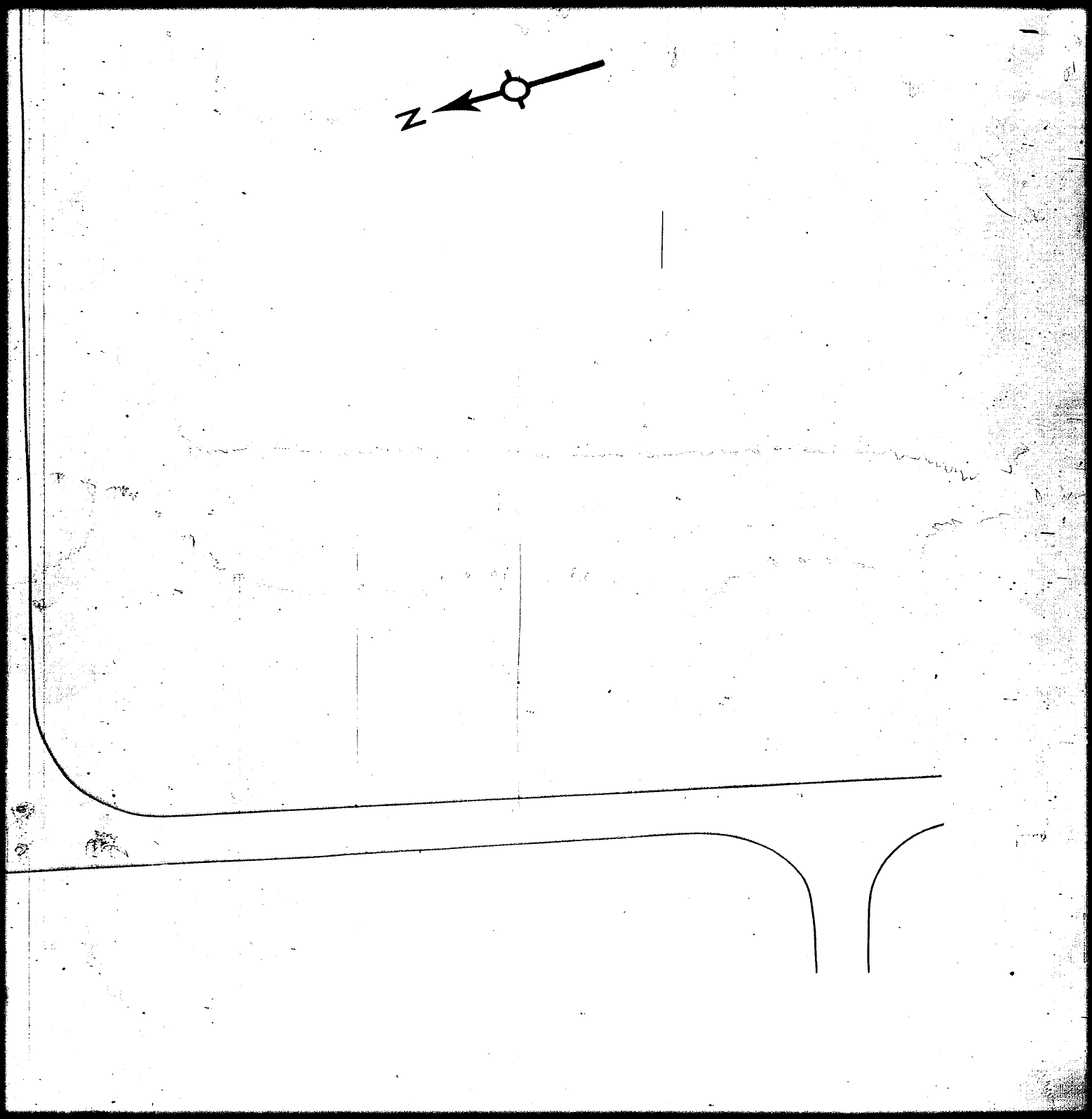
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